

CLAIMS

1. A method of inducing cell death comprising the step of contacting a cell with an amount of isolated *Flavivirus* or *Pestivirus* capsid protein, or a functional fragment thereof, effective to induce cell death; or introducing into said cell a nucleic acid molecule comprising a nucleotide sequence encoding a *Flavivirus* or *Pestivirus* capsid protein, or a functional fragment thereof, said nucleic acid being free from an entire *Flavivirus* or *Pestivirus* virus genome, wherein said nucleotide sequence is expressed in said cell at a level effective to induce cell death.
2. The method of claim 1, wherein the isolated capsid protein, or functional fragment thereof, or the nucleic acid molecule is from a virus selected from the Japanese encephalitis virus group subgenus.
3. The method of claim 1, wherein the isolated capsid protein, or functional fragment thereof, or the nucleic acid molecule is from West Nile virus (WNV).
4. The method of claim 3, wherein the functional fragment comprises SEQ ID NO:8.
5. The method of claim 3, wherein the nucleic acid molecule encodes SEQ ID NO:8.
6. The method of claim 1, wherein the cell is a tumor cell.
7. The method of claim 1, wherein the cell is contacted with the *Flavivirus* or *Pestivirus* capsid protein, or a functional fragment thereof.
8. The method of claim 1, wherein the nucleic acid molecule is introduced into said cell.
9. A method of identifying compounds that inhibit *Flavivirus* or *Pestivirus* capsid protein, or a functional fragment thereof, from inducing apoptosis in cells comprising the steps of

- a) contacting the cells, in the presence of a test compound, with an amount of *Flavivirus* or *Pestivirus* capsid protein, or a functional fragment thereof, sufficient to induce a detectable level of apoptosis in the cells; and
 - b) comparing the level of apoptosis detected in step (a) with the level of apoptosis that occurs when cells are contacted with *Flavivirus* or *Pestivirus* capsid protein, or a functional fragment thereof, in the absence of said test compound.
10. The method of claim 9, wherein the cells are contacted with *Flavivirus* or *Pestivirus* capsid protein.
11. The method of claim 9, wherein the cells are contacted with a functional fragment of *Flavivirus* or *Pestivirus* capsid protein.
12. The method of claim 11, wherein the functional fragment comprises SEQ ID NO:8.
13. The method of claim 9, wherein the cells are selected from the group consisting of Hela cells, RD cells, and 293 cells.
14. The method of claim 9, wherein the detecting step is an assay that detects a marker of apoptosis.
15. The method of claim 14, wherein the marker is phosphatidylserine (PS) or free 3'-hydroxy DNA termini.
16. The method of claim 15, wherein the assay is TUNEL analysis or annexin V flow cytometry.
17. A kit for performing the method of claim 9 comprising
- a) a container comprising *Flavivirus* or *Pestivirus* capsid protein, or functional fragment thereof; and

- b) at least one additional component selected from the group consisting of: instructions, positive controls, negative controls, photos depicting data, and figures depicting data.
18. An injectable pharmaceutical composition comprising
- a) a *Flavivirus* or *Pestivirus* capsid protein, or a functional fragment thereof, or a nucleic acid molecule that comprises a nucleotide sequence that encodes a *Flavivirus* or *Pestivirus* capsid protein or a functional fragment thereof; and
 - b) a pharmaceutically acceptable carrier.
19. The injectable pharmaceutical composition of claim 18 comprising
- a) a nucleic acid molecule that comprises a nucleotide sequence that encodes a *Flavivirus* or *Pestivirus* capsid protein or a functional fragment thereof; and
 - b) a pharmaceutically acceptable carrier.
20. The injectable pharmaceutical composition of claim 18 comprising
- a) a *Flavivirus* or *Pestivirus* capsid protein, or a functional fragment thereof; and
 - b) a pharmaceutically acceptable carrier.
21. The injectable pharmaceutical composition of claim 18 comprising
- a) a WNV capsid protein, or a functional fragment thereof; and
 - b) a pharmaceutically acceptable carrier.
22. A method of treating an individual diagnosed with or suspected of suffering from a disease characterized by hyperproliferating cells which comprises the step of administering to said individual an effective amount of the injectable pharmaceutical composition of claim 18.
23. A method of treating an individual diagnosed with or suspected of suffering from a disease characterized by hyperproliferating cells which comprises the step of administering to said individual an effective amount of the injectable pharmaceutical composition of claim 19.